

Acheulian Succession in Central India

R. V. JOSHI

The Central Indian region, comprising the Narmada and the Tapi river basins and parts of the drainage area of the Son and the Godavari, is unique in Stone Age sites (Fig. 1). It contains rich fossiliferous Pleistocene deposits in the Narmada Valley yielding Stone Age artifacts known for the last thirty years. In the recent explorations the present author (Joshi 1961*a*) discovered several Stone Age sites on the tributaries of the Ken (a major affluent of the Son River) in the Damoh area, which lies close to the northern bank of the Narmada River. The stratified, but unfossiliferous, gravel and clay beds of this region contained lithic implements of both the Early and Middle Stone Ages. The Early Stone Age industries are essentially Acheulian in character and further divisible into earlier and later stages.

The earlier industries occurred in the basal gravel, which is overlain by a sterile silt deposit, while the Middle Stone Age artifacts belonged to the sandy gravel resting on this silt. Due to the separation of these two tool-bearing gravels by a sterile deposit and differences in the use of raw materials and the tool types, no relationship could be established between the earlier and later Stone Age industries.

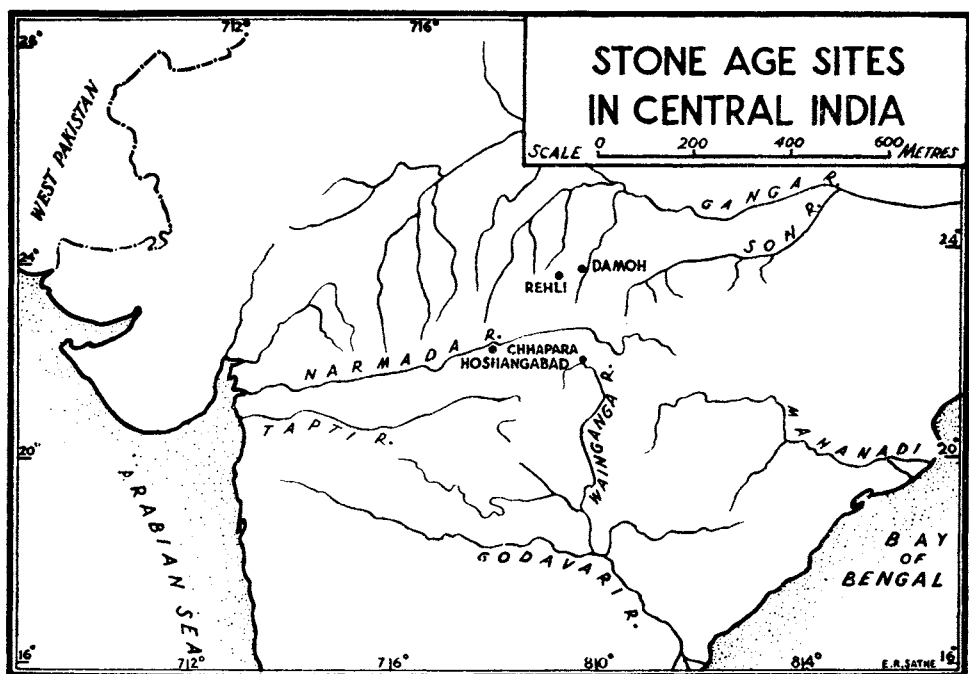


FIG. 1. Stone Age sites in Central India.

Another interesting area in Central India is the Wainganga Basin, a river which joins the Wardha, a northern tributary of the Godavari River. In the upper course of the Wainganga, the present author (Joshi 1961*b*) noticed two gravel-beds. Of these the basal gravel yielded an industry somewhat comparable to advanced Acheulian or *Wainganga-A* type (Fig. 2) while the second gravel gave an assemblage distinctly of Middle Stone Age or *Wainganga-B* type (Figs. 3*a* and 3*b*). Stratigraphically the Wainganga-A deposit is separated by a silt-bed from that containing Wainganga-B implements. However, in the raw materials, manufacturing technique and even in a few tool-types both these industries show a close relationship. Some of the tools, such as finely worked shouldered or tanged points, scrapers, burins and thick blades are the characteristic features of the Wainganga-B industry. In the advanced technique and new tool-types the Wainganga-B industry shows its evolution from Wainganga-A, an earlier industry with close late-Acheulian affinities.

In the Narmada river sections we have the early Acheulian stage which is represented in the Damoh area also. Although both these areas have deposits yielding late-Acheulian as well as post-Acheulian industries their interrelationship is not clear. The upper Wainganga Valley has not shown yet the presence of earlier Acheulian industries; but its beds possess a late-Acheulian Wainganga-A industry giving rise to a post-Acheulian or Middle Stone Age industry. The recent excavations on Adamgarh Hill close to the southern bank of the Narmada near Hoshangabad have further advanced our knowledge of Acheulian succession in Central India (*Indian Archaeology*, 1962). In the stratified deposits of this palæolithic site are encountered implements ranging from early to late Acheulian and, finally, those of post-Acheulian industries. A short account of this excavation is given in the present paper.

The Narmada River at Hoshangabad (Long. $22^{\circ} 45'$ and Lat. $77^{\circ} 43'$) in Central India marks the boundary between two distinct morphological features. On the north of this river is the agglomeration of scraps and dissected tablelands of the Vindhyan Mountains. To the south is the 15-mile stretch of alluvial peneplain composed mostly of black cotton soil, interspersed here and there by isolated knobs and low stony ranges. Of these, an isolated low hill called Adamgarh, which lies 2 km. south of Hoshangabad, has long been known for its stone quarries. However, no artifacts of great antiquity were reported until the year 1935, when De Terra and Teilhard de Chardin visited the site in connection with their palæolithic studies of the Narmada River at Hoshangabad. From the three sites on this hill they recovered palæolithic tools from deep pockets filled with laterite soil, 40 to 50 feet below the hill surface on the eastern slope. De Terra (1939) distinguished two types in these soil pockets: 'One kind is filled with primary laterite which is free from implements; the other (tool-bearing) shows rewashed laterite in which angular pieces of iron oxide and laterite are mixed with quartz and sandy silt'.

Of the tool-bearing deposit he further writes, 'the presence of rewashed laterite with implements in Central India was hitherto unknown and is of interest in view of the wealth of early palæolithic hand-axe cultures represented in similar deposits near Madras. It indicates also that such ancient soils may be widely distributed in the adjoining hills, where fan deposits cover the flanks of the ancient alluvial plain'.

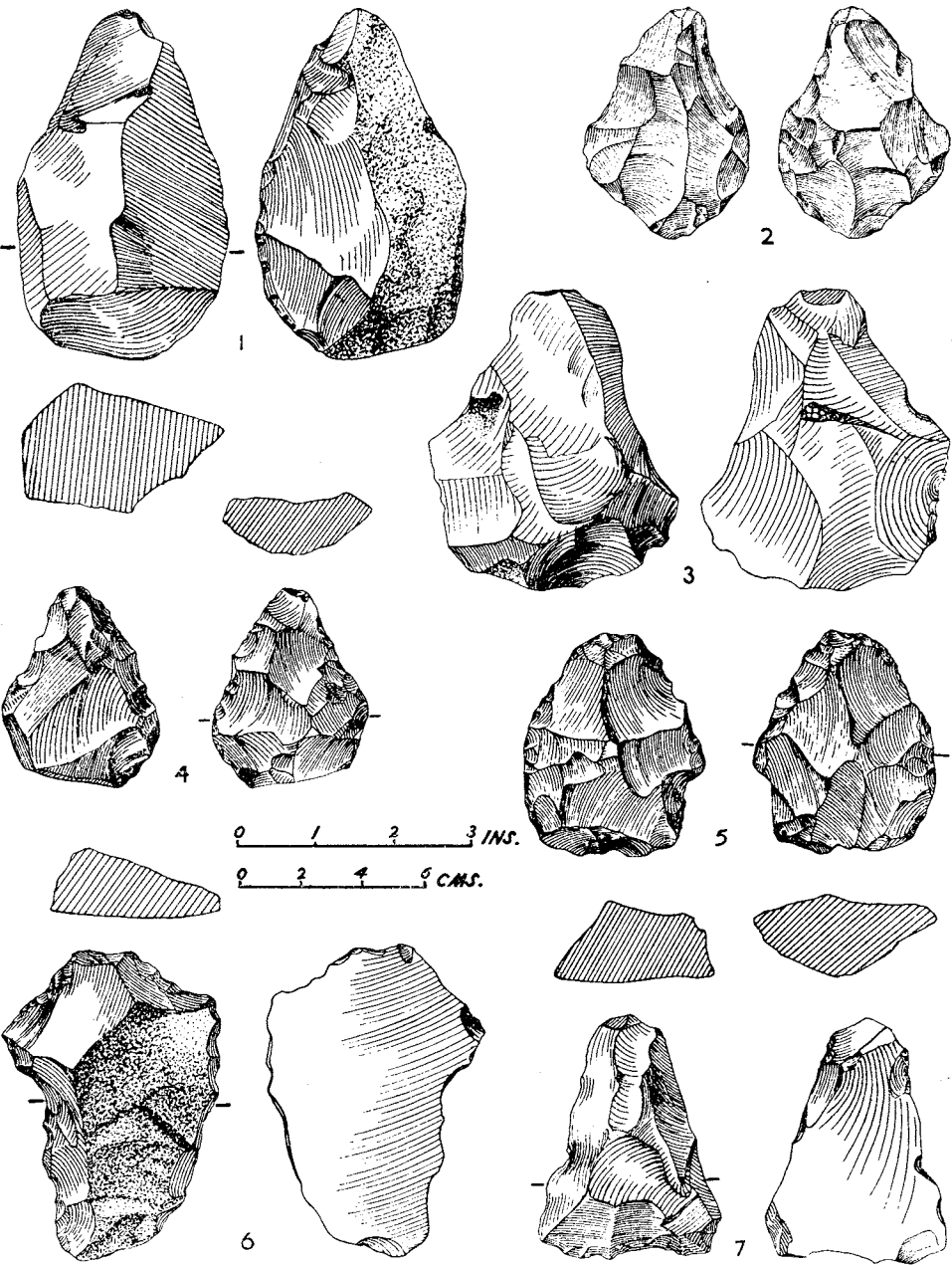


FIG. 2. Wainganga-A type tools.

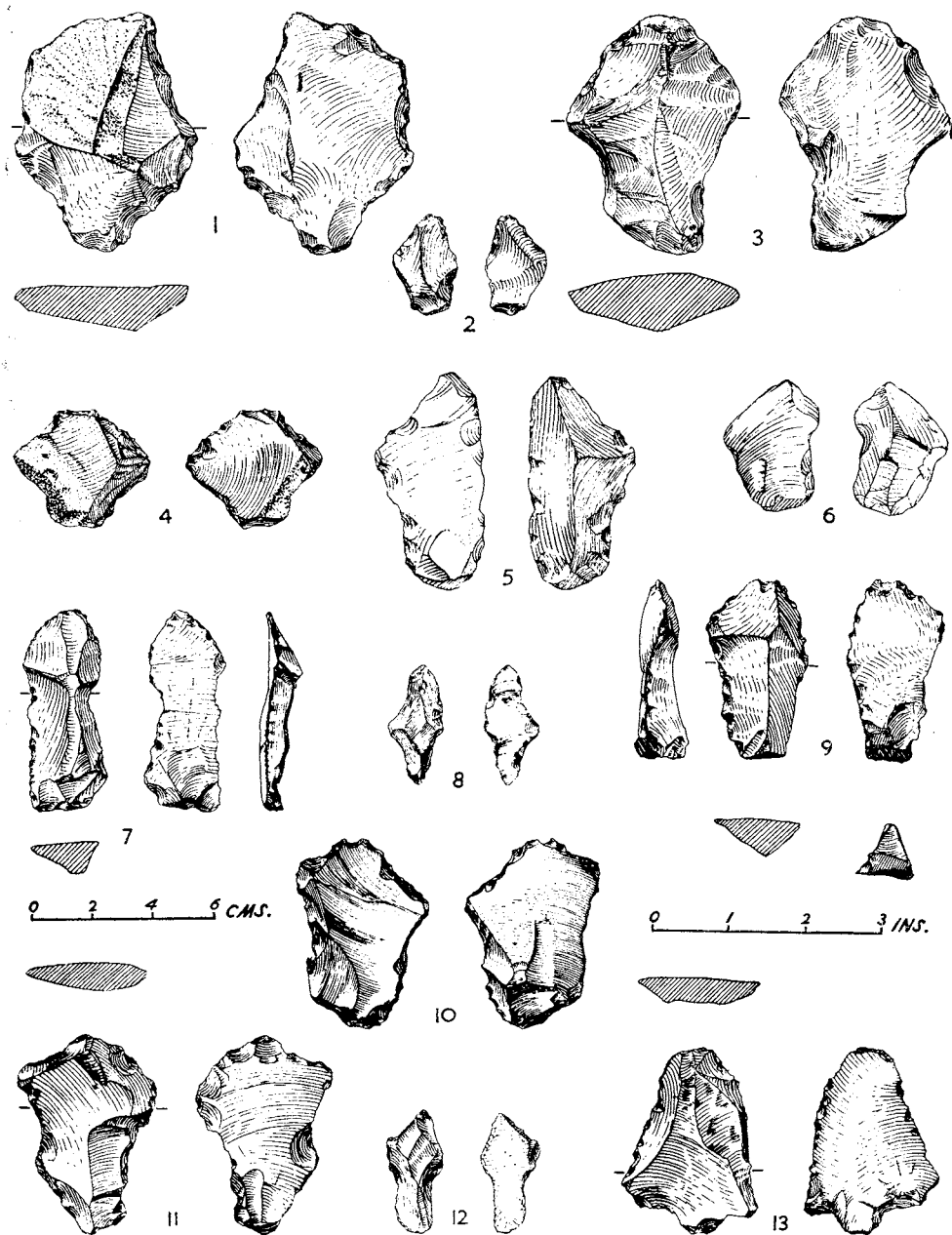


FIG. 3a. Wainganga-B type tools.

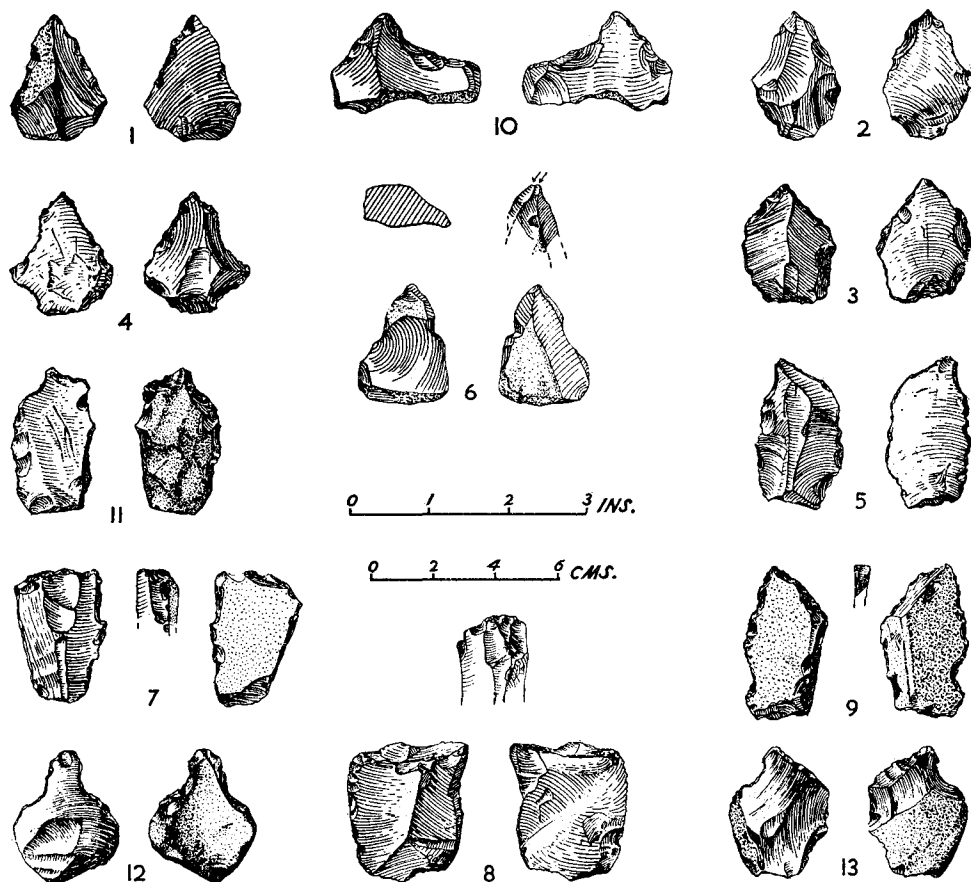


FIG. 3b. Wainganga-B type tools.

The tools collected by De Terra from rewashed laterite included 'a much rolled core or hand-axe of nondescript type and an assemblage of three crude Abbevillian-like hand-axes, one large flake with edge trimming, one chopper of early Soan type, and two large flakes. They came from a hollow two feet beneath the surface of ancient red soil on the hill-top, about 250 yards northeast of the rock shelter. . . . In the talus near the southern hill slope were found fine discoidal cores (one a primitive tortoise core), one flat-bottomed, steep-sided pointed tool and two pebble choppers, all of which resemble the early Soan types found in the lower Narmada group with early palæolithic hand-axes'.

The author examined this locality in December 1953 when a few tools were obtained from the debris adjacent to the rock-shelters. The tools were mostly hand-axes, cleavers, discoids and flakes, showing predominantly more or less Acheulian characters.

De Terra's survey of the Narmada between Hoshangabad and Narsingpur had already brought to light well-stratified fossiliferous Pleistocene beds containing human relics in the form of lithic implements. On comparative typology and

stratigraphy de Terra equated these Narmada beds with those of the Potwar region of West Pakistan, which he had investigated earlier. Thus he established the relationship between the Stone Age cultures of two distant regions of the Indian subcontinent, namely the Indian Peninsula and the northern region.

Being situated on an isolated hill, the Adamgarh palæolithic site is free from direct river action. It is a promising locality for finding undisturbed evidence of Early Stone Age man.

In addition to palæolithic artifacts, Adamgarh Hill has yielded a rich microlithic assemblage from the black soil, and also rock paintings, which are rare in India. Although most of these paintings are quite late, a few of them seem to be of some antiquity. Whether any of them belonged to the microlithic period cannot be proved at the moment. Adamgarh Hill thus seems to have been a much frequented site from palæolithic to microlithic, and even in historic, periods.

In all, eighteen trenches, numbered ADG-1 to ADG-18, were laid out, some in the shelters and some close to them (Fig. 4). The lowest depth reached was about 3 metres in the cave-like shelter (Trench ADG-2). Below this is the laterite formation. ADG-2 has an interesting situation. It is a cave-like shelter, and the trenches were laid inside as well as outside. It showed the presence of laterite at the bottom overlain by sandy red clay and angular debris, the latter two yielding respectively Early and Middle Stone Age artifacts. Over these beds rests dark soil containing microliths. The top layers yielded a few objects of early historic times.

ADG-7 was inside the south-facing rock-shelter. It yielded Early Stone Age tools in the bottom rubble mixed with red clay, Middle Stone Age-type tools in the fragmentary deposit lying immediately above the basal red clay, and finally microliths

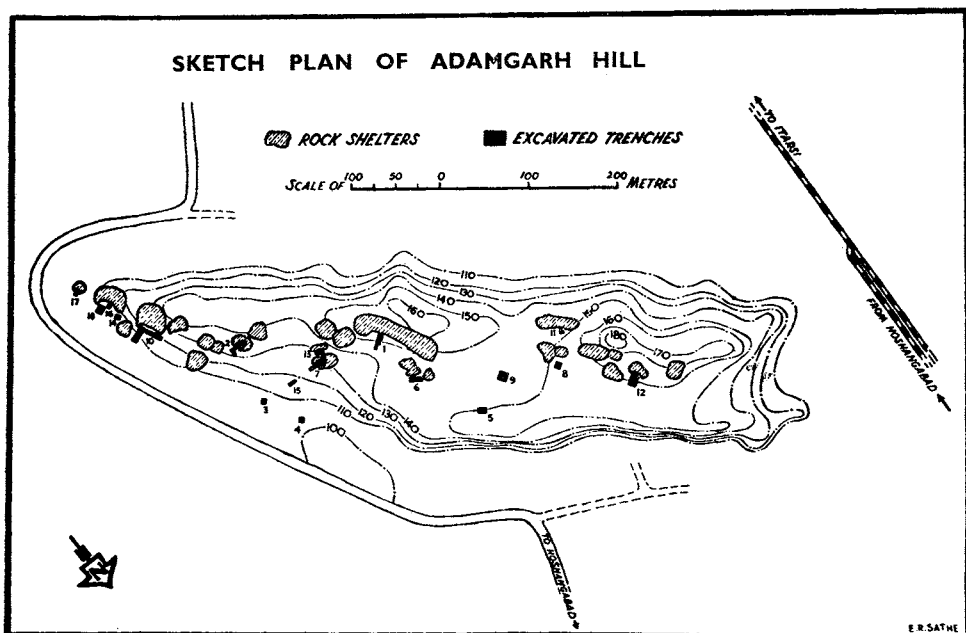


FIG. 4. Sketch plan of Adamgarh Hill showing rock shelters and excavated trenches.

in the surface deposit. In general, it may be said that the triangular area lying within the trenches ADG-1, 6 and 7 provided all the important stratigraphical and cultural data of this hill. A naturally exposed section on the northern slope showed the various stages of the formation of laterite on the local sandstone, its further derivatives of gravelly sand, clay and finally the debris layers.

STRATIGRAPHY

The hill is composed of bedded sandstones and quartzites of the Vindhyan system with insignificant partings of shale. The rocks have a westerly or south-westerly dip of about 10° – 20° . The eastern or northeastern face of the hill is an escarpment. On this side the cliff rises steeply by nearly 25 metres from the ground up to level surface at the top of the hill. A subsidiary scarp of about 8 to 10 metres containing several rock shelters lies above this level surface.

The rocks exposed in the scarp show differential weathering. In these the sandstones and shales have been greatly affected by the weather, giving rise to pillar-like forms, honeycomb structures, and small arches, etc., characteristic of differential erosion. The quartzites, however, have resisted the erosion, and these beds often project wherever the underlying weaker sandstone and shale beds have been removed. A characteristic spheroidal weathering or exfoliation of the rocks due to thermal and chemical weathering can be vividly seen in several exposures. The boulder-like forms displayed by broken blocks on this hill and those found in excavations are due to this kind of exfoliation and are not a result of river action. The sub-rounded rock fragments occurring in the debris are likewise affected by the erosion.

On the northern slope of the hill the rocks are covered by a ferruginous laterite crust. In some places where the rock is heavily jointed this material has entered through the fractures. At one site huge boulders are found engulfed by the laterite. This has initiated further lateritization in the boulders, an outer crust of which is now completely weathered and has assumed a honeycomb structure characteristic of a true laterite. At the base of the escarpment a similar lateritization can be noticed

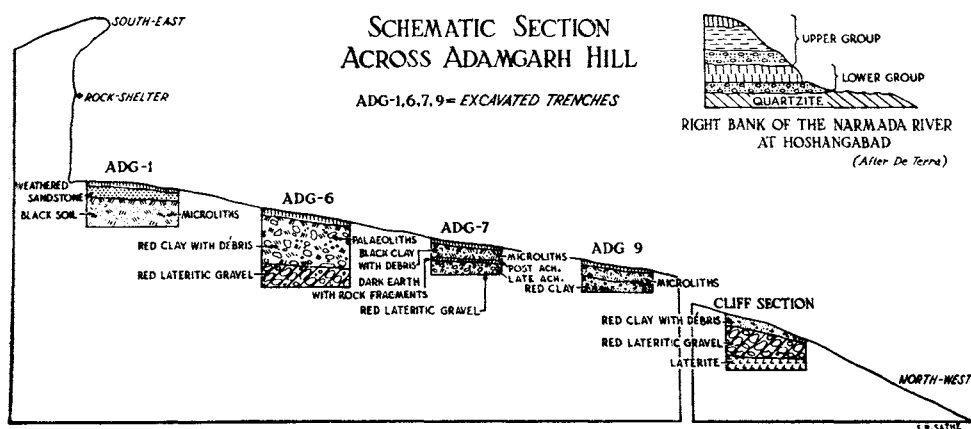


FIG. 5. Schematic section across Adamgarh Hill.

in the naturally exposed rocks, and it is also confirmed in the trial trenches (ADG-3 and 4).

On the high ground the laterite was noticed in the excavation at ADG-5, ADG-6 and ADG-8. It was also found in the trenches dug in the open rock-shelters, as at ADG-7, and the cave-like shelter at ADG-2. At all these places the laterite material rests on or is partly enclosed by the blocks of rocks broken off from the scarp face. The freshly exposed laterite had the appearance of typical laterite. It was red speckled with white, with a honeycomb structure, and was sticky when wet.

The laterite occurring in the depths on this hill thus lies on the underlying Vindhyan formations and is of a detrital nature. It must be derived from the laterite on the Deccan Trap or on the fan containing trap boulders somewhere in the upper course of the river. Its age, however, cannot be ascertained, except that it was formed some time before the appearance of palæolithic man on this site.

The laterite at Adamgarh has been partly eroded and covered by fine gravel and red clay derived from it. In the clay and overlying it is the unconsolidated debris composed of sub-rounded blocks and fragments of local rocks. This clay and the debris is the palæolith-bearing horizon. No second laterite deposit has been noticed sealing this palæolithic bed. Neither the debris nor the clay shows any kind of stratification imparted by water action. It is likely that the underlying laterite was severely eroded and fine clay and rock fragments deposited in the resulting hollows and depressions.

The tools embedded in the lateritic clays have been weathered and worn due to their association with these ferruginous clays and the action of the circulating subsoil water. For the same reason a few implements look worn. However, they are not rolled, thus proving that the tool-bearing deposit had not been disturbed. To summarize: the palæolithic stratigraphy at this site has a lateritic substratum overlain by a partly hardened sandy deposit and sticky red clay, the last two being derived from the underlying laterite (Fig. 5). Overlying and partly enclosed in the red clay and sandy deposit is the fragmentary talus or debris containing palæolithic implements. A section depicting this stratigraphy was exposed in the excavation at

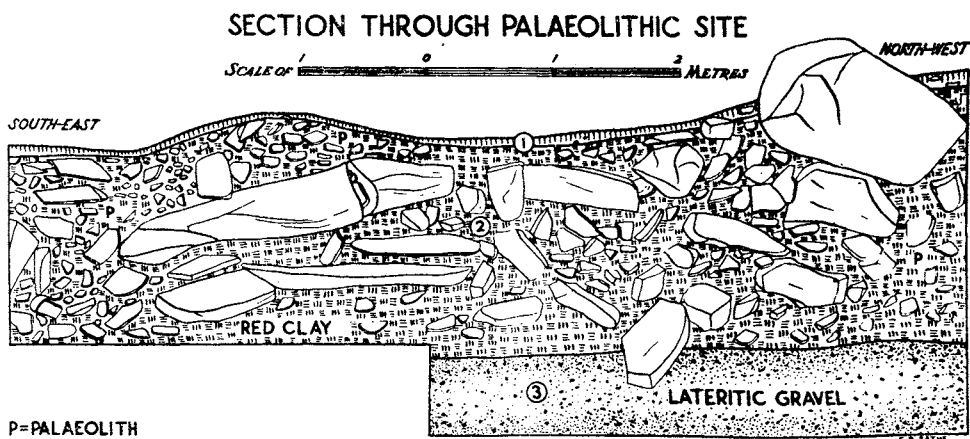


FIG. 6. Section through palæolithic site.

ADG-6 (Fig. 6). The surface soil resting on the implement-bearing bed is thin and composed of red silty clay, often dark in colour due to humus content. This yielded a few microliths.

Wherever the palæolithic tool-bearing talus is absent the red clay, which is often sandy, is extensively eroded. On the resulting uneven surface the microlith-bearing dark soils rest with a clear erosional unconformity as seen in trench ADG-8.

In Trench ADG-7, the palæolith-bearing debris is overlain by layers of rock fragments containing tools of smaller dimensions than those of the Early Stone Age. The tools are generally made of quartzite and rarely of chert, chalcedony or vein quartz. It is an assemblage of scrapers, points and flake-blades and is comparable to Middle Stone Age artifacts of this country.

THE ACHEULIAN INDUSTRIES

Nearly all the implements of the Early Stone Age are made on quartzite and fine-grained sandstones, locally available in the outcrops of the Vindhyan rocks on the hill. Only very rarely is chert or cherty quartzite used for this purpose. A large number of tools are made of blocks and chunks of rocks obtained either from the talus or directly from the well-jointed exposed rocks in the hill. The system of multi-directional joints facilitated mining of the rock fragments of tabular habit. A few of the steep-core scrapers and choppers are made of such tabular rock pieces.

Pebbles and pebble-flakes are also freely used in manufacturing artifacts. In the total assemblage of nearly 280 specimens, including cores and flakes, about 35% are made on pebbles or pebble-flakes. The rock formations of the hill do not contain conglomerate beds nor could pebbles have been deposited high up on the hill during extraordinary floods of the Narmada or the adjoining stream, for there is no evidence of flood action in the form of an appreciable pebble deposit nor marks of extensive erosion. As raw material for lithic tools the pebbles, therefore, seem to have been specially brought by man from the neighbouring river-bed. A good number of pebbles found in the excavation show battering or bruising, perhaps due to their use as stone-hammers or tools.

Pebbles have some advantages over the naturally exposed rocks. The former are readily available in the river in any desired size and shape and the tool-maker had simply to select a proper specimen of this raw material. Secondly, the freshly exposed river pebbles are usually less weathered and sufficiently tough to withstand drastic reducing in thickness and width as required to obtain sharp edges and points. On the other hand, the cloven blocks, being weathered, are generally weak and therefore less resistant.

Over 50% of the chopper tools are made from pebbles. Flattish discoidal pebbles were often used for making unifacially trimmed steep-edged scrapers, and ovoid or ellipsoidal pebbles for producing the chopper edge by alternate flaking on the circumference. In the excavated tools, the discoids form the major group after that of the choppers, and as with them, nearly half are made from pebbles. Hand-axes and cleavers are rarely made from pebbles.

The large number of unfinished tools shows that this was a palæolithic factory site. Hand-axes constitute 16.4% of the total collection. Out of these only 3.64%

INVENTORY OF IMPLEMENTS FROM ADAMGARH EXCAVATION TRENCHES—ADG-6 AND ADG-7

Industries		Depth in cms.	TOOL TYPES																Total		
			Hand-axes		Cleavers		Scrapers		Points		Flakes		Choppers		Discoids		Cores				
ADG-6	ADG-7		ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	ADG-6	ADG-7	
Post Acheulian	↑ Microliths	0-20																			
		21-40																			
		41-60	1	—	2	—	3	—	1	—	2	1	2	1	4	2	1	—	16	4	
Late Acheulian	Post Acheulian → Acheulian	61-80	—	—	—	—	—	2	—	1	—	1	—	2	—	1	—	—	—	—	7
		81-100	—	—	—	—	—	—	—	—	—	2	—	6	—	2	—	—	—	—	10
		101-120	1	—	—	—	—	3	1	2	8	2	3	3	3	2	—	—	16	12	
		121-140	1	—	3	—	1	—	—	—	3	—	2	—	3	—	1	—	14	—	
		141-160	4	—	3	—	—	—	2	—	8	—	13	1	2	—	—	—	32	1	
Early and Mid. Acheulian		161-180	2	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	8	—	
		Total (120)	9	—	8	—	4	5	4	3	23	6	24	13	12	7	2	—	86	34	

are finished specimens. Five or six of the 18 cleavers are simple forms. There is also an appreciable number of unfinished choppers and discoids. Flakes, which make up 17.55% of the collection are, mostly un-retouched and are the waste product of tool manufacture.

The flake-scars on the tools are generally shallow and small, indicating controlled flaking by soft hammer. A large number of artifacts also show stepped scars of careful secondary trimming. The cross-sections of finished tools are more or less regular and the implements have symmetrical forms. All these features are typically Acheulian. Further, no technological distinction can be drawn between the tools made of pebbles and those dressed out of other material, since both are worked in the same way.

Trench ADG-6 yielded Early Stone Age tools in the debris layers overlying the lateritic clay, and a few implements of Middle Stone Age type in the upper levels. Nearly 86 out of 280 specimens were obtained from this trench.

The following pages give a detailed description of the material obtained from trenches ADG-6 and ADG-7 (see Table on p. 159).

The tools found at the lowest depth (180 centimetres) in ADG-6 are two incomplete ovates—one on a flake and another on a quartzite block—and four bifacial choppers. All are weathered and worn and show early Acheulian forms (Pl. 1a). The richest tool-bearing horizon of 150 cm. contains most of the tool types in varying proportions. These implements are generally less weathered. In this level the finely flaked fresh ovates of lenticular cross-section occur along with the thick and worn ovates of irregular cross-sections. The cleavers are few and do not show much variety. Choppers form the largest group of thirteen specimens. Of these, four are unifacial choppers and all but one are worked from pebbles. The remaining nine choppers are bifacially trimmed—six of pebbles and three of blocks (Fig. 7). As pointed out on p. 158, the tool-makers have always shown preference for pebbles whenever the chopper was desired. The other tool-types—two points and eight flakes—are not very characteristic, although the former appears for the first time in this level.

The succeeding level of 135 centimetres shows a marked increase in number of cleavers of finer shapes and a decrease in number of hand-axes and choppers. No fresh hand-axe or cleaver occurs above 120 centimetres, and generally this marks the end of the Acheulian phase (Pl. 1b). The implements from the higher horizons are small. Choppers from these levels are diminutive forms and they should rather be classified as core-scrapers.

In Trench ADG-7, hand-axes and cleavers are totally absent, other tools are smaller and types like points and scrapers are significantly present at all levels. However, the implements are still larger than those commonly met with in Indian Middle Stone Age assemblages. The accompanying chopper group has no special characteristics apart from small size.

A marked change in tool composition occurs at the 80-centimetre level and above. The implements of this horizon are small and represent an unspecialized industry of which points and scrapers are the chief tool-types. They are worked from flakes or nodules of quartzite and sandstone. Thick blades or flake-blades occasionally retouched as side-scrapers are conspicuous artifacts. They invariably

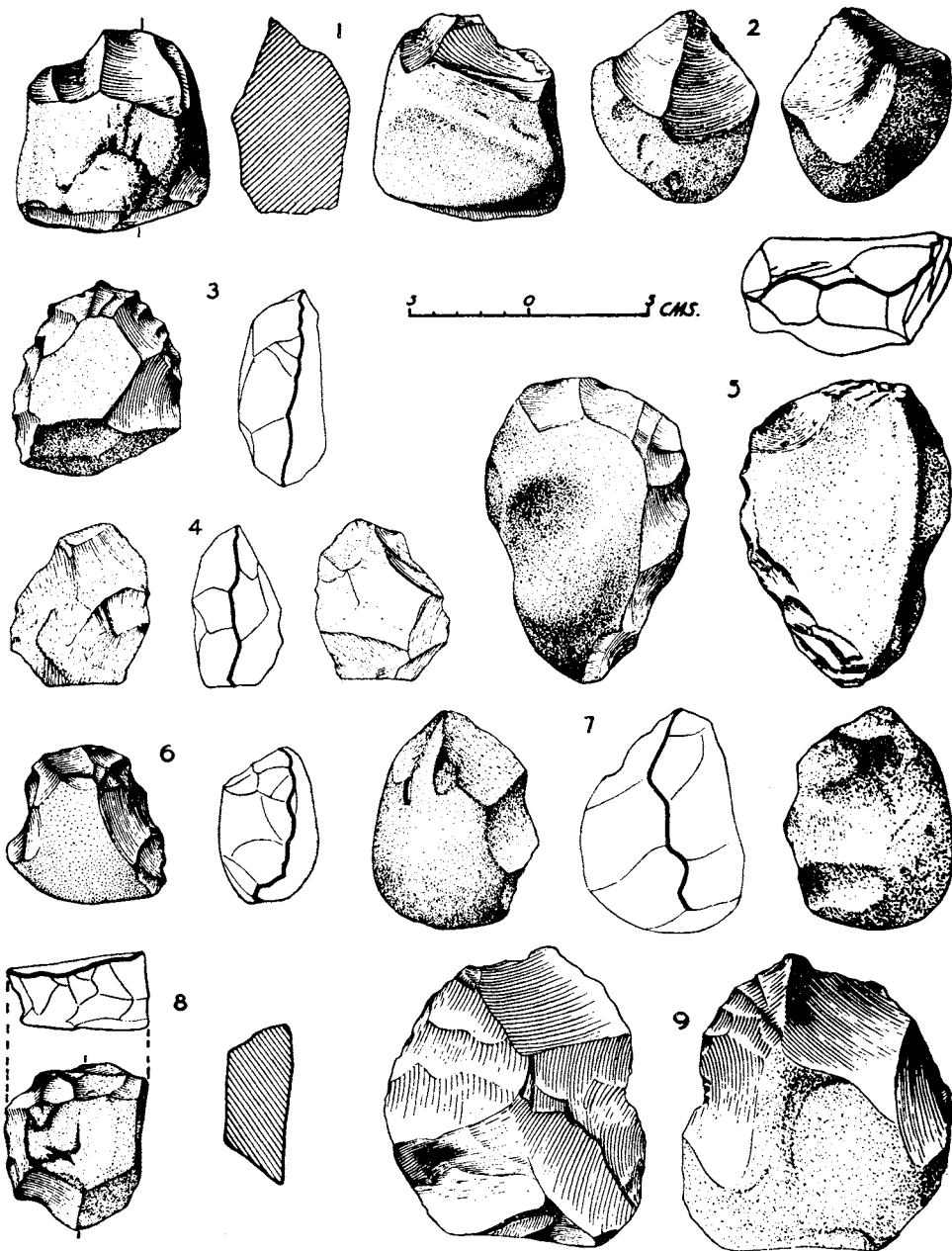


FIG. 7. Choppers from Adamgarh.

have an unfaceted striking platform inclined at an obtuse angle with the primary flake surface. Some with convergent primary flake-scars on the front seem to have been knocked off the prepared cores. The points are simple, leaf-shaped and sometimes even shouldered or tanged, while the scraper group is made up of core-scrappers and flake-scrappers, the latter including hollow-scrappers and side-scrappers. This group of tools represents the Middle Stone Age assemblage (Pl. II). The microliths appear at approximately 50–60 centimetres, and continue to the surface. However, their correlation with the Middle Stone Age industries cannot be established at this site.

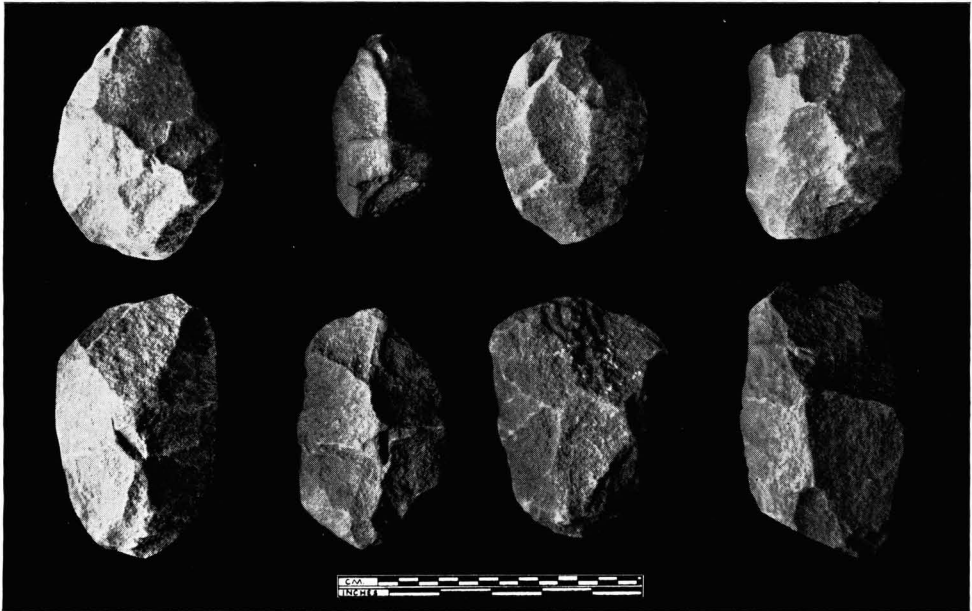
On the evidence of these two trenches, there appears to be a succession of Acheulian industries. The early Acheulian stage is not clearly represented, although it occurs at Hoshangabad in the basal gravel of the Narmada deposits. However, some of the worn out implements found among the boulders on the Adamgarh Hill are comparable to those found in the Narmada basal gravels. The tool-bearing red clay and debris of Adamgarh is similar to the red concretionary clay exposed in the lower group of the Narmada deposits. De Terra's theory (1939) that this concretionary red clay is the horizon of the late Acheulian industries is aptly proved in the Adamgarh excavations also.

In the Narmada sections the deposits of the Lower and Upper groups are separated from each other by an erosional non-conformity. The Upper Group yields only post-Acheulian industries (Late Soan of de Terra) along with re-deposited and rolled early implements. What time gap this non-conformity represents is difficult to estimate. There is no faunal difference between the Lower and Upper Groups, both of which contain mid-Pleistocene fauna. But looking to the evidence obtained in the Adamgarh excavations the time gap does not seem to be a very long one.

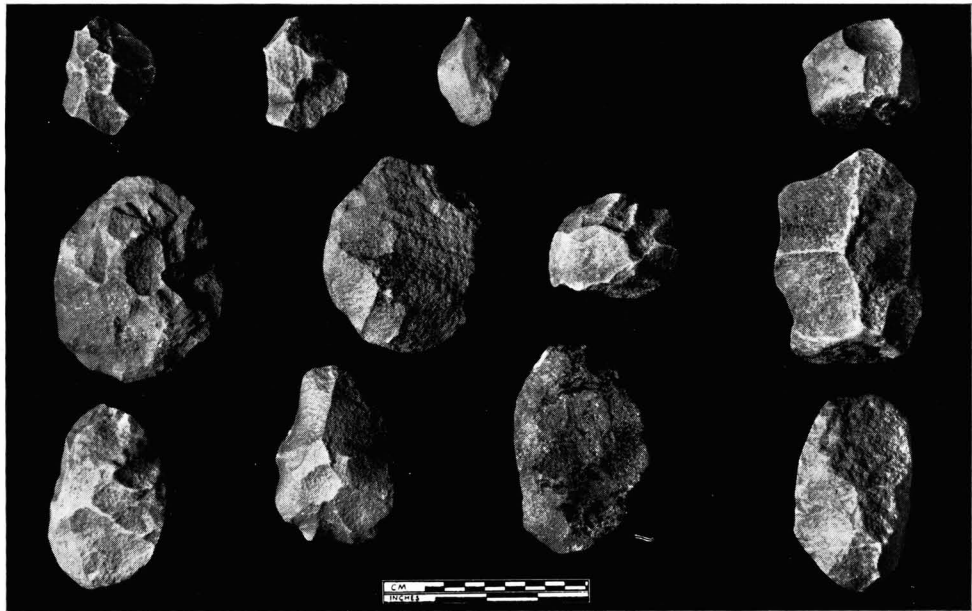
Much importance is attached at present to the occurrence of pebble tools in Indian Early Stone Age industries, ever since these were first reported by de Terra in the Soan Valley of West Pakistan. De Terra (1939) regarded them as an independent tradition distinct from the Madras hand-axe industries of South India. But later, when similar pebble implements were noticed at almost all the palæolithic sites, their occurrence in remote places was explained as due to either migration or diffusion (Krishnaswamy *et al.* 1951). A similar argument was advanced when hand-axe industries were found in the Soan Valley. The northward spread of the Madras tradition and southward march of the Soan were considered the only explanations for their occurrence all over this vast country.

At no site yielding both these industries have pebble tools of Soan type occurred in a deposit stratigraphically earlier than the horizon containing hand-axes and related tools of the Madras tradition. However, the Oldowan pebble culture of Africa is stratigraphically proved to be the earliest Stone Age industry there (Clark 1962), and since there is a close typological parallel between African and Indian early palæolithic industries, it had been assumed that Indian pebble industries were similarly earlier.

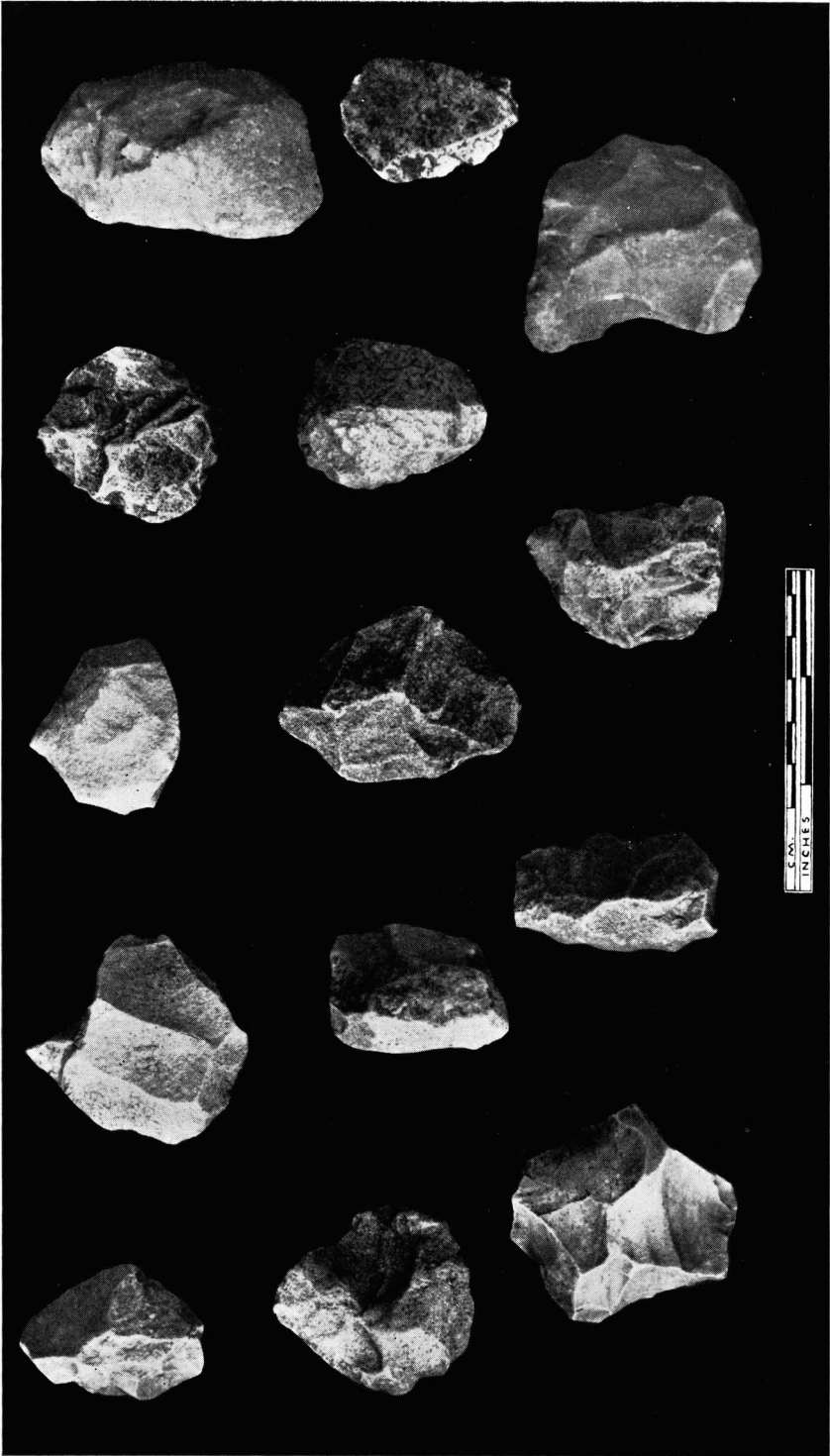
In India, pebble tools are inseparable adjuncts of Acheulian and post-Acheulian (Middle Stone Age) cultures. This is evident wherever the total collections from stratified deposits are available. The proportion of pebble tools to hand-axes in a



a. Early and Middle Acheulian tools from Adamgarh.



b. Late Acheulian tools from Adamgarh.



Post Acheulian tools from Adamgarh.

certain collection is not an important factor, for at some sites pebble tools occur in larger quantities than hand-axe tools while at other sites it is the other way about. Even with pebble tools, sometimes the emphasis is on the proportion of unifacial and bifacial types, and if a parallel were drawn with African Kafuan and Oldowan pebble industries, the unifacially trimmed choppers would have to be considered earlier.

The Adamgarh excavation has conclusively proved that no such distinction can be made, for unifacial types occur even with late Acheulian industries. The term 'pebble tools' is in fact inaccurate, since even the tools of hand-axe category are sometimes made of pebbles (Clark 1962).

Therefore, the term 'chopper group' is preferable and should include the tools trimmed in one or both directions. The advantage of pebbles as the raw material for such implements was pointed out above. The predominance of the chopper group in the palæolithic industries of some sites should be attributed to the ecological aspect of the site, and should not necessarily be regarded as a different tradition until of course it can be demonstrated stratigraphically as well.

REFERENCES

- CLARK, J. D.
 1962 The problem of the pebble cultures, *Attila VI Congresso Internazionale delle Scienze Preistoriche e Protostoriche*, 1: 265-271.
- DE TERRA and PATERSON, T. T.
 1939 *Studies on the Ice Age in India and associated Human Cultures*, Carnegie Institute of Washington, 493: 313-323.
- Indian Archaeology*, A REVIEW, 1962
- JOSHI, R. V.
 1961a Stone Age industries of the Damoh area, Madhya Pradesh, *Ancient India*, 17: 5-36.
 1962b Stone Age industries in the Upper Wainganga Basin, Maharashtra State, *Proc. 48th Ind. Sc. Cong.*, Part III: 447.
- KRISHNASWAMY, V. D. and SOUNDARARAJAN, K. V.
 1951 The lithic tool industries of the Singrauli Basin, District Mirzapur, *Ancient India*, 7: 40-65.